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ABSTRACT

This guide describes a waste reduction program for Indiana schools, kindergarten through 12th grade. It is designed to be used by any school administrator, teacher, staff person, student and/or parent willing to provide leadership, generate enthusiasm, and publicize the program. By combining traditional lessons with the actual practice of waste reduction and recycling, students can apply their classroom skills to solve real-life problems. In developing this guide, the Indiana Department of Education is responding to a need identified by the General Assembly, communities, and schools to educate children about the waste problem and to provide workable solutions. The guide is divided into 13 sections: (1) "Reasons for Waste Reduction"; (2) "Steps for Starting a School Waste Reduction Program"; (3) "Source Reduction Options"; (4) "Purchasing Recycled Materials"; (5) "Packaging"; (6) "Trash Trivia"; (7) "Paper Trivia"; (8) "Facts" (what the U.S. recycles each year and the energy and money saved); (9) "Activities"; (10) "Award Winning Recycling Programs Currently in Operation"; (11) "1990 NEED Youth Awards for Energy Achievement Involving Recycling"; (12) "Resources for Recycling"; and (13) "Glossary of Recycling Terms." The three activities, which cover social studies, science, and mathematics topics, include a list of needed materials, directions, and questions. (Author/KR)

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WASTE REDUCTION GUIDE

For Indiana Schools

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WASTE REDUCTION GUIDE

For Indiana Schools

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A MESSAGE

From H. Dean Evans
Superintendent of Public Instruction

United States citizens have basked in a virtual land of plenty for more than two centuries. While not unappreciative, perhaps they were unwise in not taking into account that this vast store of resources one day could be dissipated.

In order to prevent our sometimes excessive consumption from reducing our resources to a dangerously low level, we have, only in recent years, begun to search for methods of preservation. We must assure the availability of these bounteous treasures for our children and grandchildren.

Conservation by today's adults will not be enough, rather we must teach our children, and they must teach their children on down through the generations. Upon that premise, the Department of Education has prepared this 1990 Waste Reduction Guide to encourage the teaching of "reuse, reduce, and recycle" in our Indiana schools.

Assembled here are facts and suggestions that can be used for development of a conservation program by one teacher, by a school, by a school corporation, or by an entire community. I encourage each of you to seriously examine what and how much you can do to preserve the wonders of your community, your state, and your nation. Then, all of us should begin doing it!

INTRODUCTION

This guide describes a waste reduction program for Indiana schools, kindergarten through twelfth grade. It is designed to be used by any school administrator, teacher, staff person, student, and/or parent willing to provide leadership, generate enthusiasm, and publicize the program. By combining traditional lessons with the actual practice of waste reduction and recycling, students can apply their classroom skills to solve real-life problems. In developing this guide, the Indiana Department of Education is responding to a need identified by the General Assembly, communities, and schools to educate children about the waste problem and to provide workable solutions. Students can make a difference!

REASONS FOR WASTE REDUCTION

According to Deuteronomy 23:12-14, the ancient Israelites were instructed to designate a place outside their camp to be used to bury their wastes. Included in the equipment they were instructed to have was a shovel. The city-state of Athens opened the first municipal landfill in 500 B.C. in response to a garbage crisis. Sadly, our methods for getting rid of waste haven't changed much.

Approximately 80% of America's solid waste is being dumped in 6000 active landfills. By 1993, experts estimate that 2000 of these landfills will reach their capacity and be closed. Several others will be forced to cease operation due to contamination.

In the United States we throw away about 160 million tons of garbage a year. This is enough to fill a fleet of garbage trucks encircling the earth six times. Another way to consider the magnitude of garbage thrown away each day in the United States is to visualize a line of garbage trucks stretching from the northern to the southern tip of Indiana. Each day Americans create enough waste to fill all these trucks. In Indiana, as elsewhere, we are running out of landfill space as garbage continues to mount and old landfill sites close. It has become increasingly difficult to build new landfills. The old landfills will be filled unless we change our current throw-away behavior.

The key to solving the garbage problem is to reduce the waste we create. Waste reduction means two things—source reduction and recycling. Source reduction involves limiting the amount of waste produced and the volume of material discarded. Recycling is a system of collecting and processing materials for manufacture into new products for resale and redistribution. Once materials are back in service, the recycling "loop" is closed. A waste reduction program reduces waste at the source and manages material, so these do not contribute to the growing landfill problem.

You can create a waste reduction program which helps turn our environmental problem around by teaching students good conservation habits, such as reducing, recycling, and reusing materials that all too often are considered waste. Establishing a school waste reduction program is not complicated. It is a hands-on teaching approach which can easily be understood by students, faculty, administrators, staff, and parents. Through a multidisciplinary approach, solid waste management education helps fulfill many of the Indiana state goals for learning from art to geography, music to science, and language arts to mathematics. Such an approach is an excellent tool for teaching values of responsibility, cooperation, constructive use of resources, and respect for the environment. The habits of waste reduction, taught in the school, carry over to the home and reinforce community waste reduction programs. With your guidance, students can do their part in making a better world by starting in the school.

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STEPS FOR STARTING A SCHOOL WASTE REDUCTION PROGRAM

The following steps provide a general framework for planning, implementing, and evaluating a waste reduction program. Each school will want to modify the program to meet its special needs. Use the checklist under item 10 to help establish your school's waste reduction program.

1. COMMITTEE

Establish a planning committee that provides guidance and general support for the waste reduction program. Include on the committee:

- an administrator;
- a student;
- a teacher;
- clerical, custodial, and lunchroom staff representatives; and
- a parent-teacher organization representative.

2. COORDINATOR

Select a student coordinator to lead the committee who will spark the interest of the rest of the school and ensure program success. The coordinator's role is to organize activities, solve problems, and monitor the program. Teachers and staff can assist the coordinator.

3. COMMUNITY OFFICIALS

Meet with community officials who enforce fire, health, and safety codes for advice on how recyclable

The RECYCLING TEAM Can Create the Community Spirit You Need to Reach Your Recycling Goals

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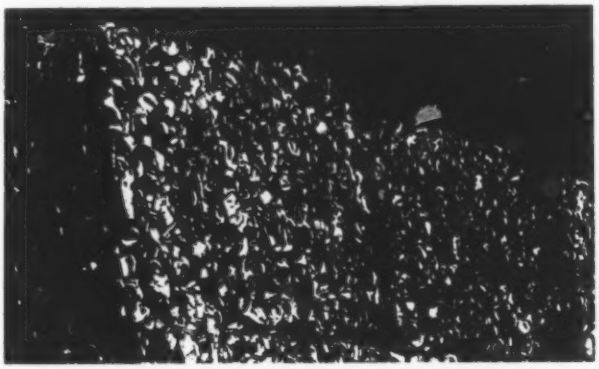
materials should be handled and stored. The use of safety equipment, such as gloves and safety glasses should be stressed at all times when recyclable materials are being handled. Contact municipal or county solid waste coordinators for information on other school and community waste reduction programs. Seek their assistance on getting the program started and running smoothly.

4. MARKETS

Identify markets for recycled material by finding out what materials are recyclable in your community. Find out which recycling centers and recycling businesses will accept what types of materials such as paper grades, glass, plastic, aluminum, and other metals.

- check your local telephone directory yellow pages under recycling and waste paper dealers (a waste paper dealer buys and processes recycled paper for sale to paper mills and other end markets);
- contact community garbage collectors and recycling centers.



Three out of four Americans believe that they can more than double the amount of waste that is presently recycled, according to a survey released by the National Solid Waste Management Association.

5. MATERIALS REDUCED AND RECYCLED

Assess source reduction opportunities and decide what school-generated materials to reduce and which to recycle. Consider materials from the classroom, office, cafeteria, and grounds including:

- low-grade paper, such as construction paper, writing tablets, and colored paper;
- high-grade paper, such as white notebook, office, computer, ditto, and copy paper that is free of tape and other contaminants;
- other materials that could be recycled include newspapers, cardboard (old corrugated), glass, aluminum cans, metal cans, plastic (polystyrene and other plastic packaging materials), and yard waste (compost on school grounds).

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6. GOALS

Establish school goals for an overall amount of recyclable material to be collected. Help students design charts that monitor the amount of material collected on a monthly basis. Keep a running total displaying your school's progress in a prominent place. Students will try hard to reach goals if they know what is expected.

7. PROMOTION

Develop a promotional program that informs teachers, staff, students, and parents about the waste reduction program.

How To Get Students Involved In The Program

Explain the reason for the waste reduction program, promote student and staff participation, and illustrate what materials to pursue. Encourage school activities, such as:

- designing posters illustrating what, how, and why to reduce and recycle;
- teaching waste reduction concepts through a multidisciplinary approach. For example, during:

  Language Arts—writing essays of reducing garbage;
  Science—studying source reduction, recycling, and composting;
  Social Studies—comparing the amounts, types, and methods of materials reduced and recycled in different parts of the United States and throughout the world;
  Mathematics—weighing, charting, and converting to volume the amount of materials reduced or collected;
  Art—creating weaving, sculpture, paper-mache, paper-making, masks, and puppets from discarded paper, fabrics, and other materials; and
  Music—making musical instruments using recyclable materials and singing songs using lyrics about garbage and recycling.

- surveying the community to determine why some people reduce and recycle wastes and others do not;
- having older students teach younger ones about waste reduction; and
- use proceeds for student-oriented projects regarding recycling (example: bumper stickers stating, "Our School Recycles").

How To Help Students Model Good Conservation Habits

- promote source reduction by using two-sided copying, route information, rather than recopying, and reuse office paper as scrap paper in the classroom;

- encourage cafeteria lunches and lunches brought from home that have reusable or recyclable trays, plates, and utensils;
- create a school compost pile for nonmeat food scraps and yard wastes (be sure to check whether composting is allowed by local ordinance);
- use refurbished or recycled toner cartridges and typewriter ribbons;
- close the recycling loop by purchasing recycled copier and cómputer paper; and
- use recycled lunchroom trays (cardboard). Then, recycle when finished.

How To Keep The Program Going

- chart the decrease in garbage disposal costs and volumes due to the implementation of the waste reduction program;
- publish reports about the program in school newsletters and local newspapers;
- award certificates of waste reduction to participating students and teachers;
- inform students, teachers, administrators, parents, and the community of the program's ongoing success;
- give presentations to PTO meetings, community organizations, and design school plays around waste reduction theme;
- work with local media for publicity; and
- have representatives from your local recycling business, waste hauler, or environmental group visit your local school to discuss waste reduction and recycling.

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8. CONTAINERS

Obtain classroom and building storage containers.

Classroom storage containers may be made from cardboard boxes with signs listing and illustrating recyclable materials. Place the containers next to classroom waste cans as a reminder to students to recycle. Students will enjoy decorating the boxes with school logos, slogans, and colors.

Depending on the school's available storage space, either inside or outside bins or sheds are helpful for storing recycled material.

Remember to segregate recyclable materials, so they are acceptable to markets. For example, high-grade paper should be stored only with high-grade paper, low-grade with low-grade, and newspapers with newspapers. Contaminated recyclables are of little or no value to markets.

9. COLLECTION AND TRANSPORTATION

Arrange for collection and transportation of recyclable materials. The Town Council may designate a bin from town for collection. Negotiate with the waste hauler for a collection bin.

Building Storage

Classroom teachers may select students on a rotating basis to empty classroom containers into designated building storage containers, bins, or sheds.

Transportation

Collection may be arranged with local community recycling centers, school operations personnel, volunteer teachers, or parents who may transport material to processing centers.

10. REEVALUATION

Ensure the committee reevaluates the program on a regular basis, making modifications as needed.

Each component of the program needs evaluation to meet overall program goals.

Checklist For A Successful School Waste Reduction Program

- ☐ Establish a planning committee.
- ☐ Select student coordinators.
- ☐ Meet with community officials and solid waste coordinators.
- ☐ Identify the markets for recyclable materials.
- ☐ Decide what school-generated materials to recycle.
- ☐ Establish school goals.
- ☐ Develop a promotional program that provides recognition.
- ☐ Obtain storage containers.
- ☐ Arrange collection and transportation of recyclable materials.
- ☐ Reevaluate the program.

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SOURCE REDUCTION OPTIONS

The following changes may reduce the quantities of waste you produce. While some of these options will only eliminate a small portion of the waste stream, making several of these changes will make a difference. These ideas are not complete; they are meant to give rise to further ideas. By examining your waste-producing processes, you may find many more opportunities for source reduction and recycling. Find out where inefficiences could be eliminated through process change. Ask yourself whether certain materials which become waste need to be used or can be replaced with a reuseable or recyclable material. A key ingredient to success in source reduction is adopting an ethic that encourages environmentally sound practices, whenever they are feasible.

OFFICES/SCHOOLS

The waste of an average office will contain approximately 62% recyclable paper (schools have a higher percentage of recyclable paper), 9 % corrugated, and 29% other materials, including food waste and packaging, glossy paper, and other nonrecyclables. Much of the recyclable paper is computer print out and white ledger, two of the highest grades of paper. Because many schools and offices have areas where their copying or printing is done, it is fairly easy to segregate this part of the waste stream for recycling.

There are also many opportunities for source reduction, particularly for paper waste. Some ideas include:

1. Make two sided copies: Because of the multiple copies of tests, duplex copying can save enormous amounts of paper. A duplex copier costs $1500 to $2000 more than a single side copier. Savings in paper costs and filing space can be considerable.

2. Encourage reuse of paper for scrap paper: Employees can put old paper in bins and reuse it for memos, messages, calculations, etc. Reuse of scrap paper incurs virtually no extra

costs and saves on both disposal fees and the cost of new paper.

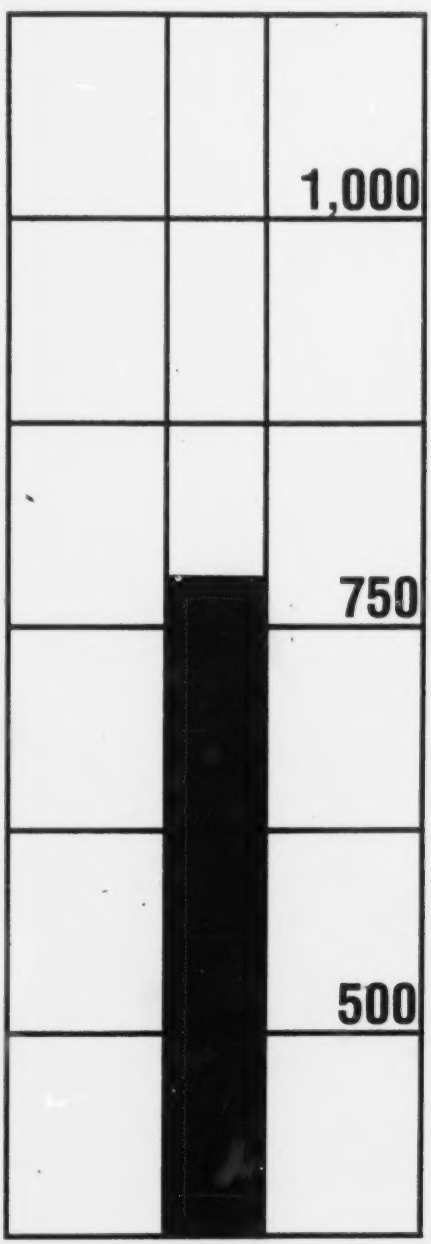
3. Cut down on paper for memos: This can be done through the use of computerized mail or by placing memos on central bulletin boards for everyone to read. Routing slips can circulate one document among several people.

4. Institute maintenance practices to prolong the life of copiers, computers, and other equipment.

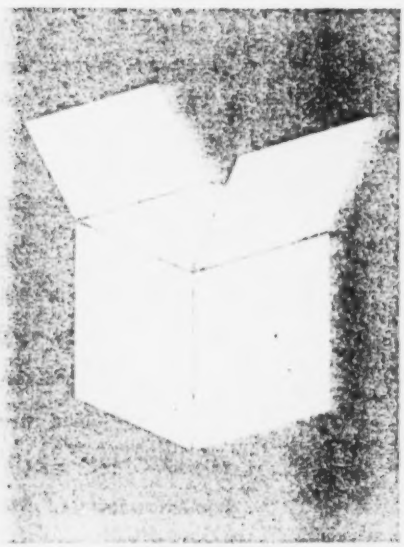
5. Ask to be removed from junk mailing lists: At Brown University, for example, "junk mail" has increased 154% in the last four years, and comprises 30% of the waste stream in some offices. Obtain a form at the local post office to remove names of employees from third-class mailing lists, from which most junk mail comes, or you can write to Direct Marketing Associates, P.O. Box 3861, Grand Central Station, New York, NY. They will remove your name from the majority of junk mailing lists nationwide.

6. Use white paper instead of colored. White paper is a higher grade than colored ledger on the recycling market and sells for many times the price (white ledger may be worth $60/ton, and you may be paid nothing in some instances for mixed paper). White paper can be recycled into more paper. Mixed paper can usually only be recycled into low-grade products such as paperboard.

Set Goals For The Drive



PURCHASING RECYCLED MATERIALS



Successful recycling requires a market for products made from recycled materials. Recyclers who handle your wastes will not stay in business unless they can sell products made from recycled materials. Thus, when you buy products made from recycled materials, you help maintain a market for your own recyclable wastes.

Purchasing products made from recycled materials contributes both to your own recycling program and to recycling in your community. It promotes and ensures the environmental and economic benefits of recycling.

PACKAGING

Nearly $1 of every $10 spent for food and beverages pays for packaging. Packaging comprises 50% of the volume of household waste. About half the nation's paper is used solely to wrap and decorate consumer products. We need to reduce packaging in order to save resources and reduce waste. We also need to work toward more environmentally sound packaging that is reusable, recycled, recyclable, and biodegradable.

TRASH TRIVIA

In the United States we throw away:

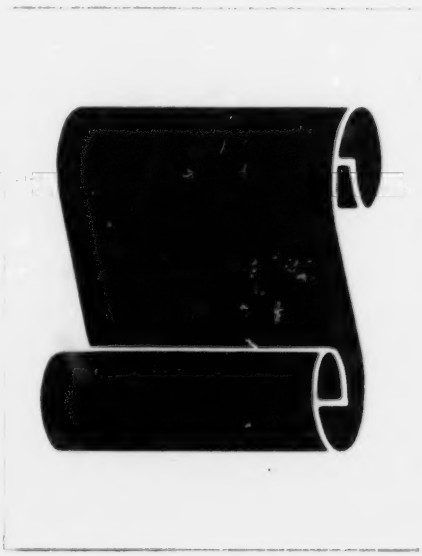
- enough office paper each year to build a 12 foot high wall from Los Angeles to New York City.
- enough glass bottles to fill the two 1,350 foot World Trade Towers every two weeks.
- enough iron and steel to continuously supply all United States auto manufacturers.
- 2.5 million plastic bottles per hour.
- the same amount of trash per person as we did in 1910 (a lot of coal ash was produced from heating homes).
- 18 billion disposable diapers per year at a cost of 15-35 cents a piece (diaper services only charge 7-20 cents per diaper).
- enough garbage per day to fill 63,000 garbage trucks that each hold 7-14 tons of trash. On an annual basis, we fill up enough garbage trucks to form a line that would stretch from earth half-way to the moon.

PAPER TRIVIA

- Every man, woman, and child in the United States uses the equivalent of 600 lbs. of paper each year (5 trees worth). In the U.S.S.R. they use 25 lbs., and in China they use 2 lbs.

- It takes 17 trees to produce 1 ton of newspaper.

- It takes 1/2 million trees to produce our Sunday newspapers in the United States.



- The United States exports 4.3 million tons of waste paper per year.

- The Federal Government uses 2% of all the paper produced in the United States each year.

- Paper making contributes to air and water pollution; also, it uses a renewable resource—trees. The making of plastics usually contributes more to air and water pollution and uses a nonrenewable resource-oil.

- In landfills paper and even "biodegradable" plastics take "forever" to break down since sunlight and air are absent.

- In the paper vs. plastic battle you may want to apply the "weight-test"—if the plastic is primarily polyethylene, then it may be favored over a comparable paper item if that item is made from virgin pulp.

FACTS

WHAT WE RECYCLE EACH YEAR—UNITED STATES

- 56% of our copper
- 27% of our iron and steel
- 50% of our aluminum
- 20% of our paper
- 50% of our lead
- 5% of our glass

ENERGY SAVINGS THROUGH RECYCLING

- Recycling 1 ton of glass saves the equivalent of 10 gallons of oil.
- Recycling 1 ton of plastic saves the equivalent of 1000-2000 gallons of gasoline.
- Recycling 1 ton of newspaper saves the equivalent of 100 gallons of gasoline.

SAVINGS FROM PRODUCT MANUFACTURE USING RECYCLED MATERIALS

	Paper	Steel	Glass	Aluminum
Water Use	60%*	40%	50%	—
Water Pollution	35%	76%	—	97%
Air Pollution	73%*	86%	20%	95%
Mining Waste	—	97%	80%	—
Energy	23-70%	47-74%	4-22%	92-97%

*7,000 gallons water per ton; 60 lbs. air emissions

- Recycling 1 ton of aluminum saves the equivalent of 2,350 gallons of gasoline. This is equivalent to the amount of electricity used by the typical home over a period of 10 years.

- Recycling 1 ton of iron saves 1 ton of coal.

SOME HANDY RECYCLING WEIGHTS

- 7 one gallon glass milk jugs weigh 1 lb.

- 22 aluminum cans weigh 1 lb.

- 10 pint fruit jars weigh 1 lb.

- 5 one quart beverage bottles weigh 9 lbs.

- 1 cubic yard container holds 49 lbs. aluminum, 700 lbs. glass, 40 lbs. PET, 24 lbs. HDPE, and 500 lbs. of newspaper.

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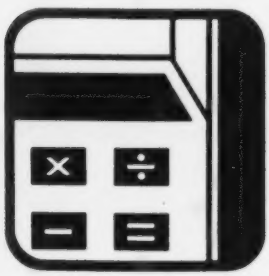
ACTIVITIES



ACTIVITY 1: MY TON OF TRASH

Proficiency/Indicator:

Social Studies: Students will be able to visualize how much waste is generated for each person in Indiana and be able to understand how the number of people living in the state and the country affects this amount.

Materials: A 4.5 pound bag of miscellaneous trash. (Trash items should be washed. Avoid items with sharp edges.)

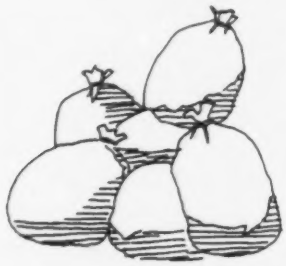
Directions:

1. Describe trash and list some examples. Then discuss the following questions.
   a. What qualities does an item have that makes you decide it is trash?
   b. What different kinds of trash are there?
2. Dump the 4.5 pound bag of trash on the floor. Then discuss the following questions.
   a. Does this seem like a lot of trash? This much trash is thrown out each day for every person in Indiana.
   b. How do you think the number '4.5 pounds' was calculated? Who figured out this number? Will the number ever change? Why?
3. Calculate the following:
   a. If you generate 4.5 pounds of trash per day, how many pounds for every week, month, and year? (Convert to metrics.)
   b. Convert these numbers from pounds into tons. How many tons of trash do you make every week, month, and year?
   c. To help you visualize how much a ton weighs, add the weights of students in the class until you reach one ton. How many students does it take to make one ton? How many "students-worth" of trash do you make every week, month, and year?
   d. How many people are in your family? If 4.5 pounds of trash is generated each day for every person, how many pounds or

tons of trash does your family make every week, month, and year?

e. How many people live in Indiana? How many pounds or tons of trash is generated each day in Indiana?

4. What happens to all the trash you throw away?
5. Where is 'away'? Is there such a place?
6. What do you think happens to waste at the landfill?
7. What are the possible problems with piling waste in landfills?
8. What would you do with your family's trash if there was no truck that came to take it away? How might this affect the amount of trash your family makes?



9. Research the rate of human population growth in Indiana and the United States since 1650.

   a. What relationship might there be between an increasing human population and the amount of solid waste generated?

   b. How might the amount of solid waste generated be influenced by changes in lifestyles since 1650?

   c. How might the amount of solid waste generated be influenced by family income?

   d. How have increases in numbers of people and amount of solid waste affected the environment?

   e. What are the predictions for future human population growth?

   f. What predictions might you make for the amounts of solid waste we will produce in the future?

   g. What impacts might an increasing population have on our use of natural resources?

10. Calculate the following:

    a. If every person in Indiana threw away one less pound of trash per day, how much less trash would end up in our state's landfills?

    b. What could you do to reduce the amount of waste you make?

11. Students analyze a grocery shopping list for discussions of packaging, recyclability, reuse, and toxic ingredients in comparing discriminatory and nondiscriminatory shopping.

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YOUR CAN OF TRASH

This material borrowed from A-*Way With Waste* curriculum guide, a program of the Washington State Department of Ecology.

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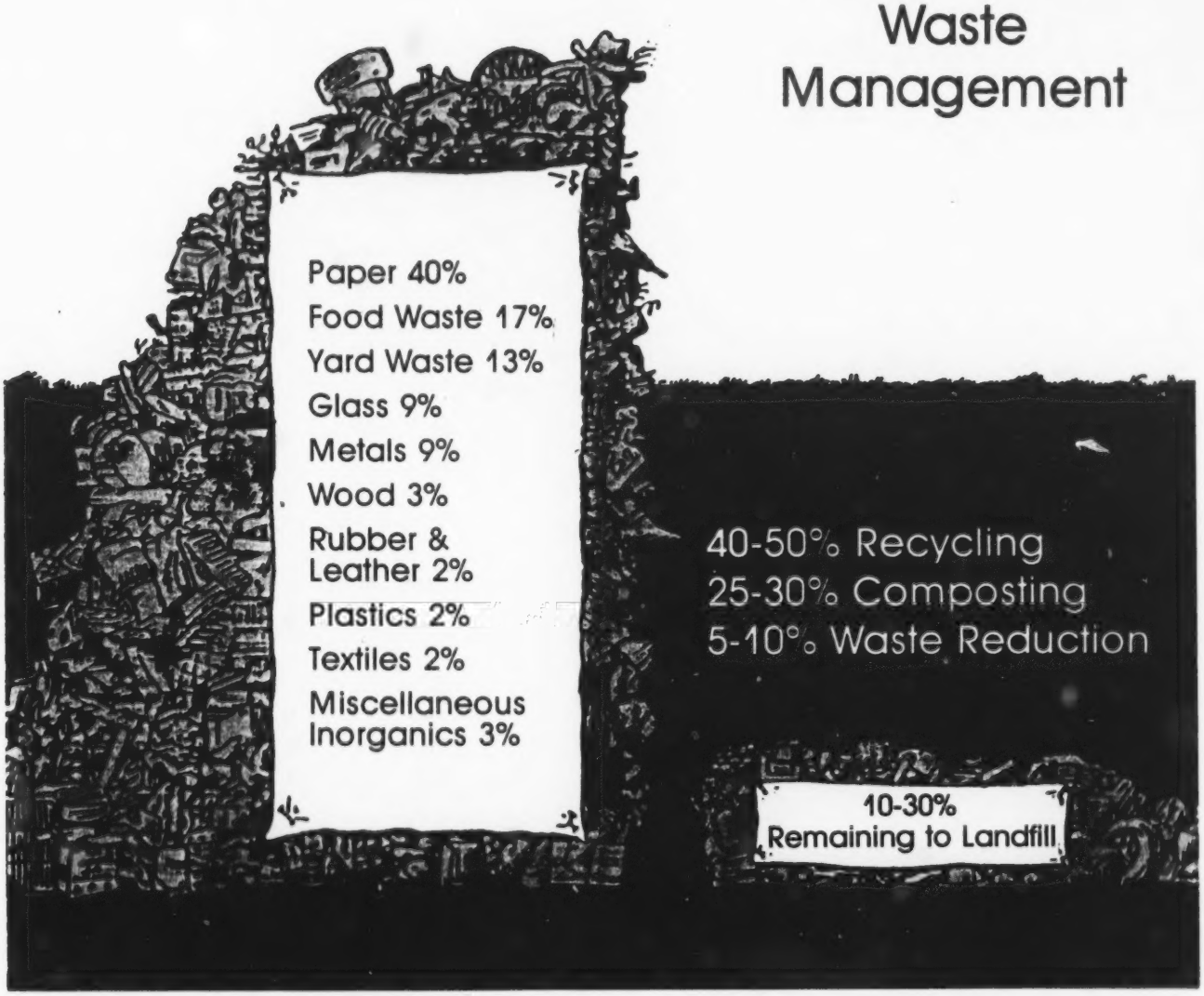
150 Million Tons Per Year Residential and Commericial Waste

Alternative Waste Management



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ACTIVITY 2: CLASS TRASH

Proficiency/Indicator:

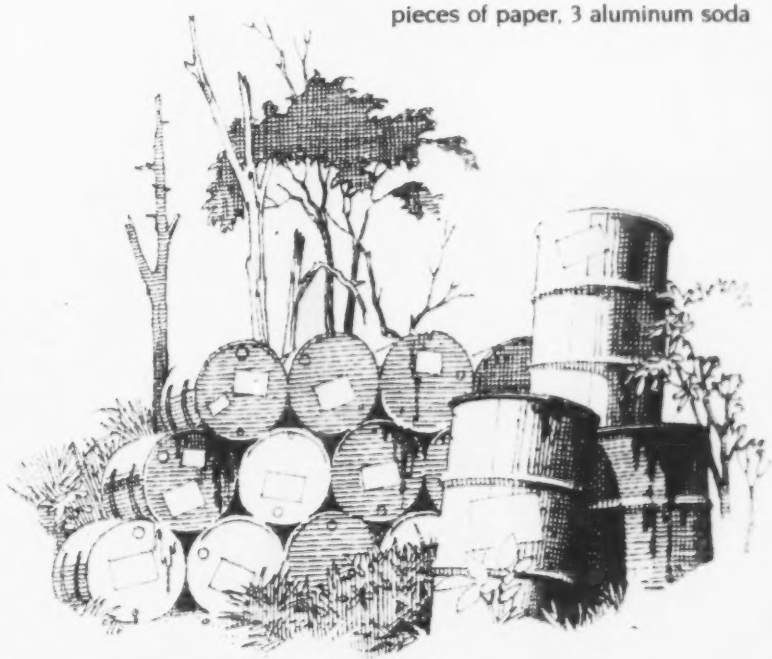
Math: Students will be able to calculate the amount and types of trash thrown out by their class at school and investigate where it is taken.

Materials: Trash generated by your class on a typical day.

Note to Teacher: Students will need to be familiar with the concepts of weight, volume, and number in order to do this activity and understand its implications. Consider using this activity as part of a mathematics lesson using these concepts.

Directions:

1. List the items you throw away in the classroom and lunchroom wastebaskets on a typical day. Then, categorize these according to what material they are made of (food, paper, plastic, aluminum, glass). Predict what four types of materials make up the greatest portions on the waste by weight, volume, and number of items. Record predictions. Convert all figures to metric.
2. Collect and save the waste your class generates (in the classroom, artroom, lunchroom, etc.) on a typical day. (Wash jars and cans, place food trash in a sealed container). You might do this over several days in order to establish an average.
3. Dump the waste on the floor. Sort the items into piles according to the type of material of which the items are made.
4. Count the number of different items of each type (for example, 47 pieces of paper, 3 aluminum soda



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cans, 8 juice boxes, 11 plastic bags, 1 broken pencil). What types of items comprise most of the waste by number? Draw a bar graph to illustrate this. Place the trash types in separate recyclable bags.

5. Select the four types of items you estimate make up most of the waste by weight. Use one of the following methods to determine the exact weight: grocery scales, bath scales where the student weighs self then weighs self holding the bag, or estimating by comparison with something in the classroom where the weight is known.

6. Calculate the volume of waste in each bag by measuring the size, length, and depth of items in it. How might volume differ if the glass, cans, or boxes are crushed: Does weight change if volume changes?

7. Compare the predictions recorded in Step 1 with the actual amounts.

8. How much waste does your class throw out in a day, week, month, and school year by weight, volume, and number? Calculate the average amount each student throws out daily.

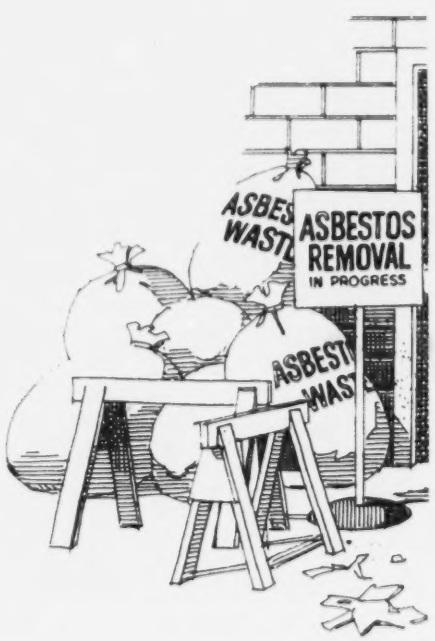
9. How much space will one school year's-worth of your class's waste fill, if the waste is not compressed? Calculate the volume of your classroom. If you did not remove any of your class's trash from the classroom, how much of the room would be filled with waste by the end of the year? How much room would be left for you? How do those numbers differ if the waste is compressed?

10. If the number of students in your class is average for your school, calculate how much waste your school generates each school year.

    a. Do you think your class generates much waste? Explain the reasons for your response.

    b. When waste from each class in your school is added together, do you think the school generates much waste? Explain the reasons for your response.

11. Investigate where your school's waste is taken.



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ACTIVITY 3: FOLLOW THAT GARBAGE AND TRASH

Proficiency/Indicator:

Social Studies: Students will be able to see where their garbage and trash goes and investigate their community's solid waste disposal issues.

Materials: Yellow pages of the telephone book. A list of questions for guest speakers to answer.

Directions:

1. Contact your municipal landfill and obtain permission for your class to visit it. Arrange for the site manager, owner, or other resource person to guide your trip and be available to answer questions. (Alternative: Ask guest speaker to come to discuss local solid waste management with class. Possible resource people would be waste disposal site operators, private waste haulers, extension agents, Indiana Department of Environmental Management personnel, or Environmental Management personnel, or environmental organization representatives.)

2. Before your visit or the speaker's arrival, develop a list of student questions you would like answered. Send them to the guide or speaker in advance so responses can be prepared. Possible questions might be:

   a. Where is the garbage from the school or home taken?

   b. How does it get there?

   c. Why was the landfill located on this site? What factors must be considered when a site is selected? What tests were done at the site before it was opened? What were the results?

   d. What laws govern solid waste disposal in your community?

   e. What is the fee for using the landfill?

f. How much does a family pay for garbage and trash collection?

g. How much does it cost to take care of garbage and trash once it is in the landfill?

h. How much solid waste is disposed of at this site daily, weekly, and yearly?

i. Who works at the site? Do they monitor what is disposed?

j. What happens to the garbage and trash once it is at the landfill?

k. What is the land used for that is adjacent to the landfill? Is the landfill a problem for nearby landowners? If so, in what ways?

l. How is the site managed for control of blowing trash, odors, noise, animals, erosion, surface runoff, and leachate?

m. Are tests performed regularly at the site for groundwater, soil, and methane gas? Are there results?

n. Is there a resource recovery program at the site? If so, what is recovered? How?

o. What impact does resource recovery have on the economy and the environment?

p. How many years is the landfill expected to last? How much time does the community have to find a new site?

q. How will the landfill be cared for after it is closed? Who is responsible for its care? What will be done with the land at the site?

r. What alternatives for waste disposal has your community considered for the future?

s. How can the students participate in making decisions that develop future waste management plans in the community?

t. If the community had a recycling program, what difference would it make to the solid waste landfill?

u. What happens to toxic waste? How close to your home is a landfill like this? What are potential problems?

The Time It Takes Litter To Decompose

Paper	2-5 Months
Orange Peels	6 Months
Milk Cartons	5 Years
Filter Tip Cigarette Butts	10-12 Years
Plastic Bags	10-20 Years
Leather Shoes	25-40 Years
Nylon Cloth	30-40 Years
Plastic Containers	50-80 Years
Aluminum	80-100 Years
Plastic Foam	NEVER

Litter Cleanup In Our National Parks Alone Costs Taxpapers $15 Million Per Year

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AWARD WINNING RECYCLING PROGRAMS CURRENTLY IN OPERATION

COLUMBIA MIDDLE SCHOOL

Logansport Community School Corporation
1300 North 3rd Street
Logansport, IN 46947
Brandi Reed and the Mother Earth Ecology Club,
Project Coordinators
(219) 753-3797

The Mother Earth Ecology Club of Columbia Middle School has been involved, on a small scale, in recycling for seventeen years. The membership is open to all 7th and 8th grade students with the membership fee for each year is to collect and recycle 100 aluminum cans. The project has developed over the years to involve the community and its leaders in establishing an "R" Day. Today, a curbside recycling program has been established. The club members are very proud of the fact that they implemented the first recycling project in the Logansport area and were responsible for stimulating interest in the entire community.

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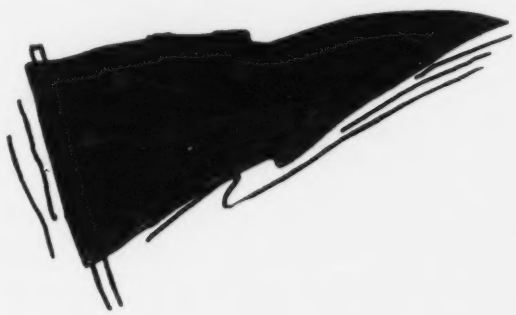
BELLMONT SENIOR HIGH SCHOOL

North Adams Community Schools
1000 East North Adams
Decatur, IN 46733
David Moffett and the Class of 1991,
Project Coordinators
(219) 724-7127

Through David Moffett's Old World History course in the fall semester of 1988, students gained the ability to judge civilization's problems of past and present. Many students researched the "throw-away" mentality of Americans and created papers on the benefits of recycling. These same students then addressed the Bellmont High School Class of 1991 and asked the class to vote on making recycling their class project. The proposal passed 207 to 10. Students were then assigned the task of addressing local organizations, including the Rotary Club, Lions Club, and Optimist's Club to consider finding warehouse space for the project. Central Soya of Decatur agreed to provide warehouse space on a trial basis. The students contacted city and county government officials to coordinate a monthly recycling effort. Students worked with the local media to coordinate publicity on the project. Ninety students to date have been involved in the program which requires two Saturday's of their former free time. Although local organizations were involved in the planning process, the success of the recycling program has been exclusively possessed by the school class since April of 1989.

KAHLER MIDDLE SCHOOL

Lake Central School Corporation
452 Elm Street
Dyer, IN 46311
Mary O'Sullivan, Project Coordinator
(219) 865-3535



The program "Paper for Parks" has instilled a sense of stewardship by students for the planet Earth. Students have studied ecology and developed plans to implement their share of the responsibilities for their surroundings. By recycling the students feel they are preserving the natural resources of the Earth. The students involved the Dyer Town Council and Parks Department to develop an outdoor classroom in adjacent Pheasant Hills Park funded by monies collected from recycling. The entire community is now involved in recycling.

HARCOURT ELEMENTARY SCHOOL

MSD Washington Township
7535 Harcourt Road
Indianapolis, IN 46260
Pat Knauer, Project Coordinator
(317) 259-5458

The entire school population of Harcourt School was involved in collecting and recycling aluminum cans. The initial goal was to make students more aware of their community and provide a tangible way for them to make a difference in their northwest community of Indianapolis. The project evolved from a concern with the environment and the desire to help the needy, as the funds they received went to help people in their own neighborhood. Lessons included discussions about the environment, pollution, economics, and conservation.

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HARCOURT ELEMENTARY SCHOOL

MSD Washington Township
7535 Harcourt Road
Indianapolis, IN 46260
Chris Chomica and Paul Kaplan, Project Advisors
(317) 259-5458

Students from all the fifth grades at Harcourt wanted to clean up the corner of Westlane and Harcourt Road. The creek was cluttered with litter and branches, and the surrounding grounds had litter as well. Students from Miss Chomica's class called the city to arrange a special trash pick up and to ask questions concerning what they could and could not do in this area, as far as disturbing the natural area. The Kiwanis Club donated trash bags and hats for the students. The students made a follow-up trip to the site before school closed in June. They plan on continuing the project during the 1990-91 school year.

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CASTLE JUNIOR HIGH SCHOOL

P.O. Box 677
Newburgh, IN 47630
(812) 853-7347

May 30, 1990

To the Faculty of Castle Junior High School:

I would like to thank all of the teachers that participated in the paper project at the junior high over the past two months. The paper that was collected from your room's box was weighed and recorded. Below are some statistics that were collected.

The total amount of paper collected reached 637 pounds. Through this project, I am hoping to make the classrooms more aware of the vast amount of paper that flows through the school every year. This paper can be and should be recycled. I would like to thank you teachers once again for your time and effort.

Sincerely,

Tim Freeze

Teacher	Date Started and Finished	Amount of Paper (Total)	Amount of Paper (Per Day)
Mr. McCleland	4/2 - 5/29	111 lbs.	2.71 lbs.
Mr. Ederhart	4/2 - 5/29	133 lbs.	3.24 lbs.
Mr. Wambach	4/2 - 5/29	62 lbs.	1.50 lbs.
Mr. Hunter	4/5 - 5/29	47 lbs.	1.24 lbs.
Mr. Glenn	4/5 - 5/29	43 lbs.	1.13 lbs.
Mrs. Cobb	4/6	10 lbs.	10 lbs.
Mrs. Jenkins	4/10 - 5/29	57 lbs.	1.63 lbs.
Mrs. Kemp	4/10 - 5/29	62 lbs.	1.77 lbs.
Mr. Siebe	4/11 - 5/3	27 lbs.	.79 lbs.
Mrs. Lindenschmidt	4/17 - 5/29	27 lbs.	.93 lbs.
Miss Goodwin	4/18 - 5/15	21 lbs.	.75 lbs.
Mrs. Mand	4/23 - 5/29	30 lbs.	1.20 lbs.
Mrs. Bradshaw	4/25	6 lbs.	6 lbs.
Study Hall	4/25	1 lb.	1 lb.

HOLLAND ELEMENTARY SCHOOL

7000 Red Haw Drive
Fort Wayne, IN 46825
Chris Danley, Science Resource Teacher
(219) 425-7364

Holland Elementary School has an enrollment of approximately 700 students. It includes Grades K–5 and Special Education. We are a magnet program in Environmental Education. Two companies are involved with our recycling efforts.

Indiana Fiber Recycling has loaned us three mini bins. The teachers, staff, and students dispose of all clean mixed paper in these bins. Once a week they are emptied and the paper is taken to the warehouse to be baled. We do not receive a profit, but we have eliminated the space it takes up in our landfills.

The first Saturday of every month a semitrailer is dropped off in front of our building from a local recycling center. From 9 a.m. to 12 p.m., we collect newspaper, plastic, glass, aluminum, tin, batteries, and polystrene. Students, parents, and teachers all pitch in to sort and load. A parent organizes the volunteers and supervises the collection site. After three hours we often have to block off the driveway, because there is no more room in the trailer. Each month a different grade level sponsors the recycling. The profits gained go into a savings account. As fifth graders the money is used to cut down on the individual costs of an "environmental trip" or distant field trip. In addition, the students clean

and save the aluminum from their satellite school lunches. We also compost in our outdoor classroom.

The principal, Mike Caywood, who shows great leadership in recycling efforts, was awarded for his outstanding contributions in recycling as a citizen and an educator in Fort Wayne.

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HAMMOND CITY SCHOOLS

41 Williams Street
Hammond, IN 46320
Jack Thomas, Project Coordinator
(219) 989-7325

There are three types of goals for this program. In financial terms, the goal is to reduce the amount of money the school coorportation is spending on waste removal and if possible to generate income from the selling of recyclable products. The environmental goal is to get the students, staff, and administration involved in recycling which will reduce the burden on our landfills. The program will also encourage community involvement in recycling at the school site, as well as at the home.

These goals will be accomplished in six phases: Information, Selection, Education, Implementation, Ongoing Evaluation, and Expansion.

Phase I . . . Information

All employees will be given a brief description of the program highlighting what their responsibilities will be should their school be chosen as a part of the pilot group. The principal must make it clear that only six schools (four elementary schools, one middle school, and one high school) will be chosen to participate in the first year of the program, but that all schools will eventually be included. This information is intended to help them make an informed choice during the selection phase.

A. The Teaching Staff

The classroom is the most important space in the . . . recycling program because most future (citizens) will pass through one or more of these spaces and will be introduced to a model, good or bad, which will affect his or her future ethic about the conservation of . . . the earth's natural and human resources.

The teaching staff will be responsible for collection and separation of paper in their classrooms. This will be accomplished by placing a trash can in each room for normal trash, as well as a box for collecting paper. Teachers should be encouraged to see that their students use both sides of a piece of paper before placing it in the recycle box. A scratch paper box should be provided for paper that has one blank side left.

B. The Custodial Staff

A recycling program will not be successful without the support of the custodians. The custodian will be responsible for emptying the recycling boxes when they are full, in addition to his or her regular

duties. The recyclable paper will be placed in a storage area until a contractor comes to pick it up.

C. The Office Staff

The waste of an average office will contain approxiamately 62% recyclable paper. Much of this is computer printout and white ledger, two of the highest grades of paper.

The office staff will place all recyclable papers, except those that deal with items of a sensitive or private nature in a recyclable box. Members of the administrative team will be encouraged to cut down on their use of paper for memos and print on both sides of the page when possible. Principals will also work with the custodial staff to see that a suitable space is found for storing the paper until pick-up can be made.

Phase II . . . Selection

No later than one week after all employees have had a chance to review the proposed responsibilities, the principal will have a vote by secret ballot to determine the amount of interest in his or her school. An opportunity to vote will be given to all employees. The ballot will simply say:

(Check One)

☐ I would like to see our school chosen to participate in the pilot recycling program.

☐ I would not like to see our school chosen to participate in the pilot recycling program.

Administrators will forward the results of their building survey along with a proposal for storage capabilities to the Environmental Coordinator who will choose six schools to participate in the program based on employee interest, facility availability, location, and population. All schools will be included in the program under the expansion phase.

Phase III . . . Education

A recycling committee will be selected in each building to provide planning, guidance, and support for the program. The committee will include students, teachers, custodians, clerical staff,

administrators, and parents. Several types of materials will be used to educate both the internal and external publics to increase their awareness and involvement.

A. Internal Publicity

Once a school building is chosen to participate, the employees and students of that building will become excited about recycling. Poster contests will be conducted in art classes announcing the beginning of the "Fourth R" in the school. Buttons or pins with the recycle logo will be distributed. A large "Countdown to R-Day" calendar will be displayed prominently in the hall or office.

The people in the building also need to know what types of paper are being accepted for recycling. Posters will be displayed in every classroom describing acceptable materials, as well as inappropriate items. These posters will remain posted after the program starts to serve as reminders. If possible, the director of your city's recycling program should be contacted to speak at every school.

Teachers will be given a copy of "Let's Recycle!" from the Environmental Protection Agency which contains lesson plans and activities geared to students on all levels, K–12. Libraries will be encouraged to increase their environmental collections.

B. External Publicity

Support needs to be given to the program from the outside. Events leading up to "R-Day" will be highlighted in newsletters that go home. Newsletters will also contain tips on the benefits of recycling in the home. The P.T.A. needs to have recycling as the topic for their meeting with a special presentation from either the Environmental Coordinator or your local recycling director.

In order to let the public know the program is starting on a city-wide basis, the Environmental Coodinator will appear as a guest on a local talk show to discuss the goals of the program with the people who call in. A press release will be prepared and given to the electronic and print media detailing the specifics of the program including the dates, schools involved, and potential gain for the schools, both environmentally and economically. The article will mention that recylable paper products from the community will be accepted at the pilot schools.

Businesses will be contacted for donations of equipment or money to underwrite the initial start-up costs of the program. Posters from the contest mentioned above will be placed in neighborhood businesses to provide additional publicity.

Phase IV . . . Implementation

The implementation schedule hinges on finding a contractor with the capabilities to buy paper in the amounts generated by schools. The schools do not have the facilities to store large amounts of waste paper, therefore, the contractor selected will have to maintain a regular pick-up schedule. Specifics of the program will be bid and the school board will make the final decision. Once the contractor is hired, the plan can be put into place rather quickly. Two weeks will be set aside for the information phase with the survey taken on the final Friday. The following week is dedicated to the selection process with the interested schools receiving notification of their acceptance or rejection, no later than one week after the survey. The next month will be set aside for the activities associated with the educaiton phase, culminating in a school-wide "pep assembly" on "R-Day".

Phase V . . . Ongoing Evaluation

The recycling program must be continually monitored and evaluated to be a success. The guidelines must be rigid enough to work, yet flexible enough to allow for emergency situations. The Environmental Coordinator will work closely with the contractor to see that all routes are running smoothly and make adjusments as necessary. The business department will keep a close watch on the program to make sure that the benefits received don't outweigh the cost. A comparison of costs before and after recycling will be published monthly.

In the schools, teachers and office workers will continually check to make sure that the right kind of paper is being put in the right box. An informal survey will be conducted at monthly intervals asking the opinions and suggestions of custodians, secretaries, principals, students, and teachers.

Phase VI . . . Expansion

The program described is limited in two ways. First, it only allows for the recycling of office quality paper. If this program is successful, and the contractor is willing and able, it could easily be expanded to include other materials. Special attention must be given to the cafeteria workers and the types of waste they produce if this expansion takes place.

The program is designed as a pilot study for six schools. Once this program is in place successfully, it can and must be expanded to include all schools to get the desired benefits from it. Other schools will benefit from the early mistakes of the pilot program.

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1990 NEED YOUTH AWARDS FOR ENERGY ACHIEVEMENT INVOLVING RECYCLING

DENNIS MIDDLE SCHOOL

222 NW 7th Street
Richmond, IN 47374

Principal: Bill Upchurch
Project Advisor: Lisa Burkhardt
Student Coordinators: Gretchen Sponsel and Chad Brandenburg
Project Title: Recycling Education
(317) 973-3300

Students coordinated a community-wide recycling day and recycled plastics and aluminum in their school. These students have written and distributed 3500-4000 twelve-page tabloids about recycling. They have written articles for the newspaper and radio station. Five area McDonald's are the sites for community recycling on "R" Day, April 21 with the Richmond Sanitary District providing the dumpsters for collection and hauling. In addition, they had an energy fair for all eighth grade students at DMS and taught energy lessons to sixth and seventh grade classes.

DAVID TURNHAM EDUCATION CENTER

Box 432
Dale, IN 47523

Principal: Sharon Schaefer
Project Advisor: Mary Helen Brown
Project Title: Simple Circuit
(812) 937-4300

Ms. Brown developed a hands-on project to teach how a simple electric circuit works and energy safety. Her first grade class

recycled cereal boxes and an old strand of Christmas lights to make "Rudolph, the Red-Nosed Reindeer".

SUNMAN ELEMENTARY SCHOOL

RR 1, Box 550
Sunman, IN 47041

Principal: John Roeder
Project Advisor: Rita Eckstein
Student Coordinator: Linda Schuman
Project Title: Recycling Saves Energy

Students wrote articles for the local newspaper describing ways recycling saves energy and urging participation in recycling activities. They collected and recycled used toys, books, and trading cards by selling them and donating the money to the Historic Hoosier Hills Project.

ST. LAWRENCE SCHOOL

524 Walnut Street
Lawrenceburg, IN 47025

Principal: Marjorie Harris
Project Advisor: Kristy Keith
Student Coordinators: Alissa Ferencak, Nicole Lieland, Carlton Strauss, Megan Ritzman, Jennifer Siemers
Project Title: Energy Pizazz

The St. Lawrence Energy Club recycled aluminum and glass, had a display at the library, taught lessons to Grades K–5, published an energy newsletter, and cleaned-up a very littered section along U.S. Highway 50.

RESOURCES FOR RECYCLING

The following resources and agencies can help provide you with additional information, teaching materials, and assistance.

BUSINESS/COMMUNITY

Central States Glass Recycling Program

Kevin Hardie
2507 Brewster Road
Indianapolis, IN 46268
(317) 872-4173

Tips on setting up a recycling program and a network of glass recyclers in Indiana Newsletter.

Creative Printing and Publishing

712 North Highway 17-92
Longwood, FL 32750
(800) 780-4447

RecycleSaurous comic books, t-shirts, stickers, posters, certificates, bookmarks, magnets, stamps, and caps.

The Glass Packaging Institute

Suite 1105-L
1801 K Street, NW
Washington, DC 20006
(202) 887-4850
Gwendolyn A. Blue, Executive Secretary

The Great Glass Caper: An Education Kit (for Grades 4–6).

The Importance of Being a Garbologist (4-6), 1976

Grip
P.O. Box 7391
Pittsburg, PA 15213

Sage Recycling

P.O. Box 1001
Boulder, CO 80306

Out of Sight, Out of Mind? A Guide to Solid Waste and Recycling.
Investigations for Kindergarten Through Sixth Grade.

Steel Can Recycling Institute

Foster Plaza 10
680 Anderson Drive
Pittsburg, PA 15220
(800) 876-SCRI

The Steel Can Recycling Institute is an industry association dedicated to promoting steel can recycling. It is the primary information and technical resource for legislation, recyclers, municipalities, businesses, and other entities interested in steel recycling and developing steel can recycling programs.

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GOVERNMENTAL AGENCIES

A-Way with Waste: A Waste Management Curriculum for Schools, Grades K–12, 1984

Washington State Department of Ecology, Litter Control, and Recycling Program
4350 150th Avenue, NE
Redmond, WA 98052

Bureau of Curriculum Development

The State Education Department
The University of the State of New York
Albany, NY 12234

SOLID WASTE: A *Unified Science Supplement.*

California State Department of Education

Publications Sale
P.O. Box 271
Sacramento, CA 95802
(916) 445-4688

The Trash Monster and The Wizard of Waste (recycling education kits for Grades 2–3 and 4–5, respectively).

CLASS Project: Conservation Learning Activities for Science and Social Studies

National Wildlife Federation
1412 16th Street, NW
Washington, DC 20036

Columbus Clean Community

181 Washington Blvd.
Columbus, OH 43215
(614) 222-6197

Biodegradeable: A Science Unit for 4th grade.

Community Recycling Activities, 1985

Bureau of Solid Waste Management
Wisconsin DNR
Order from: Bureau of Information and Education
Wisconsin Department of Natural Resources
P.O. Box 7921
Madison, WI 53707

Crafts from Trash, 1984

Bureau of Solid Waste Management
Wisconsin DNR
Order from: Bureau of Information and Education
Wisconsin Department of Natural Resources
P.O. Box 7921
Madison, WI 53707

Department of Environmental Management

State of Rhode Island
9 Hayes Street
Providence, RI 02908
(401) 277-3434

Contact: Carole Bell Oscar's Options (a curriculum guide).

Division of Litter Prevention and Recycling

Ohio Department of Natural Resources
Fountain Square, Building F
Columbus, OH 43224
(614) 265-6444

David Landis
Super Saver Investigators

Hazardous Waste Sites

Brochure
New York's Program for Investigation
Classification and Remediation
Order from: Division of Hazardous Waste Remediation
NYS Department of Environmental Conservation
50 Wolf Road
Albany, NY 12233-4010

Illinois Office of Education

100 North First Street
Springfield, IL 62777

The Message in the Bottle—A module designed to promote the study of litter. It contains a community survey, interpretation section with math problems, and a section on resources.

Indiana Department of Environmental Management

Office of External Affairs
105 South Meridian Street
P.O. Box 6015
Indianapolis, IN 46206-6015
(317) 232-8560

Lesson Plans on Recycling for Indiana Teachers.
Guide to Indiana Recyclers (Listing by counties of businesses).

Indiana Recycling and Energy Development Board (IREDB)

Indiana Department of Comemrce
Office of Energy Policy
One North Capital Avenue
Suite 700
Indianapolis, IN 46204-2288

Indiana Energy News (Free).

Let's Recycle!: Lesson Plan for Grades K—6 and 7—12, 1980

EPA Publication No. SW 801
Office of Water and Waste Management
Washington, DC 20460

Let's Recycle! Lesson Plans for Grades K—8 and 7—12.

National Energy Education Development Program

Judy Gorman
1566 Winchester Road
Booneville, IN 47601
(812) 897-0812

Ask for energy and recycling materials.

The New York State Recycling Resource Handbook

Cornell University Distribution Center
Ithaca, NY 14850

Approximate cost = $40
For further information contact: Carol Doolittle

NYS Returnable Container Law

Brochure
New York State Department of Environmental Conservation
Bureau of Waste Reduction and Recycling
Room 200
50 Wolf Road
Albany, NY 23219

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Operation Waste Watch: Seven Sequential Learning Units, 1980

Virginia Division of Litter Control
116 Washington Bldg.
Richmond, VA 23219

Ranger Rick: Recycling Reprints

National Wildlife Federation
1412 16th Street, NW
Washington, DC 20036

Recycling: Activities for the Classroom, 1978

Mary Lynne Bowman and Herbert L. Coon
ERIC/SMEAC Center
1200 Chambers Road
3rd Floor
Ohio Station University
Columbus, OH 43212

Reduction, Reuse, Recycling, (K–12)

Association of Oregon Recyclers
1615 NW 23rd Avenue
Suite 1
Portland, OR 97210

Source Separation and Recycling

Brochure
Bureau of Waste Reduction and Recycling
Room 200
50 Wolf Road
New Albany, NY 12233-4015

STOP (Save That Office Paper)

Brochure
Bureau of Waste Reduction and Recycling
Room 200
50 Wolf Road
New Albany, NY 12233-4015

Washington State Department of Ecology

4350 150th Avenue, NE
Redmond, WA 98052
(206) 867-7134
Peggy Hamilton

AWAY *With Waste: A Waste Mangement Curriculum for Schools, 2nd edition (an accompanying slide show is also available).*

Wisconsin Department of Natural Resources

Bureau of Information and Education
P.O. Box 7921
Madison, WI 53707

The Fourth "R".
Recycing Study Guide.
Recycling Facts and Figures.
Recycling Games and Quizzes.
Wisconsin Natural Resources, Volume 9, Number 4.

ENVIRONMENTAL ORGANIZATIONS

The Aluminum Association

900 19th Street, NW
Washington, DC 20006
(202) 862-5100

How to Launch an Aluminum Recycling Program.
Aluminum Recycling: Your Next Assignment.

Californians Against Waste

P.O. Box 289
Sacramento, CA 95802
(916) 443-5422

Works on mandatory recycling, source reduction, and other waste issues. Promoting paper grocery bags over plastic.

Coalition for Recyclable Waste

P.O. Box 1091
Absecon, NJ 08201
(609) 641-2197

Mobilizes an action network to push for environmentally sound packaging. Publishes a newsletter.

Conservation and Environmental Studies Center, Inc.

120-13 Whitesbog Road
Browns Mills, NJ 08015

Here Today, Here Tomorrow: A Curriculum on Recycling, Energy, Solid Waste.

Cornell Media Services

Audio Visual Resource Center
Research Park, Building B
Ithaca, NY 14850
(607) 255-2090

Woodsy Waste Wise (slides, tape, and script with activities).

Earth Care Paper, Inc.

P.O. Box 3335
Madison, WI 53704

The Entanglement Network

c/o Defenders of Wildlife
1244 19th Street, NW
Washington, DC 20036
(202) 659-9510

Coalition of 22 national organizations working on plastic litter in oceans and entanglement of marine animals.

Environmental Action Foundation

1525 New Hampshire Avenue, NW
Washington, DC 20036
(202) 745-4879

Promotes source reduction, reuse, recycling, and composting. Maintains a list of waste reduction legislation. Publications include: "Wrapped in Plastic: The Environmental Case for Reducing Plastic Packaging," 1988, 160 pages, $10 for individuals and nonprofit organizations, includes shipping.

Environmental Defense Fund

257 Park Avenue, South
New York, NY 20010
(212) 505-2100

Sponsoring a national recycling promotion campaign. For information on recycling opportunities in your local area, call (800) 225-5333. Publications list available. "Coming Full Circle: Successful Recycling Today," 162 pages, $12, includes state recycling contacts.

Fund for Renewable Energy and the Environment

1001 Conneticut Avenue, NW
Suite 638
Washington, DC 20036
(202) 466-6880

Free.

Householder's Guide to Recycling

NYS Department of Environmental Conservation
Bureau of Waste Reduction and Recycling
Room 200
50 Wolf Road
Albany, NY 12233-4015

Institute for Local Self Reliance

2425 18th Street, NW
Washington, DC 20009

Provides community consultations for solid waste planning and economic development.

Keep America Beautiful, Inc.

Mill River Plaza
9 West Broad Street
Stamford, CT 06902
(203) 323-8987

Waste in Place (curriculum for Grades K–6; currently being revised).

National Recycling Coalition

P.O. Box 80792
Lincoln, NE 68501
(402) 475-3637

A coalition of recycling industries and groups. They sponsor an annual conference and have a publications list.

Pennsylvania Resources Council

44 East Front Street
Media, PA 19063
(215) 565-9131

Promotes recycling and litter control. Organized an "environmental shopping" campaign.

Rainforest Action Network

300 Broadway
Suite 28
San Francisco, CA 94133
(415) 398-4404

Action alerts, educational materials, press kit, slide show.

Recycle for Reuse: 4-H Leader-Member-Family Guide, 1985

Publication No. 362
4-H Programs
University of Wisconsin-Extension
Madison, WI 53706

Recyculum (K–6), 1980

Eco-Alliance
P.O. Box 101
Corvallis, OR 97330

"Resource Recycling" Journal

P.O. Box 10540
Portland, OR 97210
(503) 227-1319

7 issues/year, $27. A source of information about current recycling issues, events, and publications.

The Wilderness Society

1400 Eye Street, NW
10th Floor
Washington, DC 20005
(202) 842-3400

Below Cost Timber Sales.

These are a few of the groups which address a variety of environmental issues, usually including recycling:
Sierra Club, National Audubon Society, Greenpeace, Friends of the Earth, Earth Island, Earth First!, Environmental Policy Institute, and Natural Resources Defense Council.

For addresses and a more complete list of conservation organizations at the state, national, and international level, order the *Conservation Directory* from:

National Wildlife Federation
1400 16th Street, NW
Washington, DC 20036
(202) 797-6800

It is updated annually and costs $15 per copy, plus $3.25 shipping. New issues become available in mid-January.

LIBRARY RESOURCES

Borowitz, Susan D., "Students Tackle the F'R'", Sierra Magazine: Vol. 74, No. 6, November/December 1989, pg. 23, San Francisco: The Sierra Club.

Clark, Bernadine, "Garbage-Pail Kids", Minneapolis/St. Paul Magazine.

MacEachern, Dianne, (1990), *Save Our Planet*, New York: Dell Publishing.

Partridge, Jack W., "Toward a National Solid Waste Strategy", Progressive Grocer Magazine, pg. 17–20, June 1990.

Please do not forget local resources, such as your **Cooperative Extension Service.**

GLOSSARY OF RECYCLING TERMS

This glossary is provided for general educational purposes, and in some cases, to define terms used in the text of this application.

Biodegradable The process by which a nonhazardous residue is produced when a material is acted upon by biological degradation, photochemical degradation, or chemodegradation.

Buy Back Centers Any operation which accepts sorted recyclable materials and pays the party current market value per pound for the delivered material. (See Drop-Off Center)

Composting An oxygen dependent degradation process by which plant and other organic wastes decompose, under controlled conditions, to produce a product with fertilizing and soil conditioning value.

Computer Printout Computer paper, white or with bright green bars.

Conserve To protect from loss or depletion. Conservation is the wise use of natural resources to minimize loss and waste.

Corrugated Cardboard Unbleached, unwaxed kraft paper, with ruffled inner liner. Does not include linerboard or paperboard such as cereal boxes or clothing liners.

Decompose To break down into component parts or basic elements; to rot. Decomposition is imperative for the continuation of life since it makes essential nutrients available for use by plants and animals.

DEM The Department of Environmental Management is a state agency responsible for environmental issues. DEM developed the recycling regulations and works with SWMC to provide a Technical Assistance Program for those to whom the regulations apply.

Drop-Off Center Any operation which accepts sorted, recyclable materials, but does not pay the party for the materials. (See Buy-Back Center)

Dump Open, unsanitary disposal site used before existence of licensed, controlled burial sanitary landfills.

Energy Recovery The generation of energy by burning solid waste.

Garbage Spoiled or waste food that is thrown away. Generally defined as wet food waste; excludes dry material (trash). The term is often used interchangeably with the word "trash."

Groundwater Water beneath the earth's surface that fills the spaces and moves between soil particles and rock. Supplies wells and springs.

Hauler A garbage collection company which offers complete refuse removal services. Many haulers now offer to serve as collectors of recyclables.

Hazardous Waste Waste that causes special problems for living organisms or the environment because it is poisonous, explosive, burns or dissolves the flesh or metal, ignites easily with or without flame, or carries disease. Some hazardous wastes cause only one problem, others cause several.

HDPE (High Density Polyethylene) A recyclable plastic, used for items such as milk containers, detergent containers, and base cups for plastic soda bottles.

High-Grade Paper Relatively valuable types of paper, such as computer printout, laser printout, white ledger, and tab cards.

Humus Organic material consisting of decayed vegetable matter that provides nutrients for plants and increases the ability of the soil to retain water.

In-House Programs which are limited to a specific building or set of buildings and do not involve the surrounding neighborhood or the greater community.

Landfill A site for the controlled burial of solid waste.

Laser Paper Printouts from a laser printer.

Leachate Liquid that has percolated through solid waste and/or been generated by solid waste decomposition and contains extracted, dissolved, or suspended materials. May contaminate groundwater or surface water.

"Listed" Material Materials which businesses are required to recycle by law.

Litter Waste materials discarded in an inappropriate place. Littering is illegal in Indiana.

Low-Grade Paper Less valuable types of paper, such as mixed office paper, corrugated cardboard, and newspaper.

Market Creation Activities Any series of activities which has as its goal the profitable sale of recyclable materials at their highest possible price. These activities include any which are common in the field of business. They may include the acts of collection, processing, transportation, and/or multi-party cooperative efforts.

Methane A colorless, odorless, flammable, potentially dangerous gaseous hydrocarbon (CH_4) present in natural gas and formed by the decomposition of organic matter. Can be used as a fuel.

Mixed Office Paper Paper which is unsegregated by color or quantity (e.g., combination of white ledger, newsprint, colored paper, envelopes without windows, etc.). Mixed paper generally sells below the price of the least valuable paper in the mix.

Natural Resource Valuable, naturally occurring material such as soil, wood, air, water, or minerals.

Nonrenewable Resource A natural resource that, because of its scarcity, the great length of time it takes to form, or its rapid depletion is considered finite in amount (e.g., coal, copper, petroleum).

Office Paper Used or discarded high grade white paper. This includes typing paper, photocopy paper, and other paper deemed acceptable by a used paper buyer.

Organic Derived from living organisms.

PET (Polyethylene Terephthalate) A type of plastic resin. For example, two liter plastic soda bottles are made of PET.

Pollution Harmful substances deposited in the environmental leading to a state of dirtiness, impurity, or unhealthiness.

Postconsumer Waste Any product which has served its intended use or has exceeded its useful life and is diverted from the waste stream.

Processing Any technique for the purpose of reducing the volume or bulk of waste and increasing its value or marketability.

Raw Material Unprocessed natural resource or product used in manufacturing.

Recyclable A material which can be recycled.

Recyclable Material Any postconsumer waste for which a market currently exists or for which one could be developed.

Recycle The collection and reprocessing of manufactured materials for reuse either in the same form or as a different product.

Recycled Content Goods, supplies, equipment, materials, and printing containing postconsumer materials.

Recycled Paper Any paper product which contains postconsumer material.

Recycler Someone who processes or buys recyclable materials on a regular basis.

Recycling A closed-loop system which includes the separation, collection, processing, and the eventual resale or reuse of materials which would otherwise be disposed of as municipal waste.

Renewable Resource A natural resource derived from an endless or cyclical source (e.g., sun, wind, water, wood, fish.) With proper management and wise use, replacement of these resources by natural or human-assisted systems can be approximately equal to their consumption.

Resource Recovery The generation of energy from solid waste through combustion with extraction of some recyclable materials as a by-product.

Reuse A process by which an item that has served its original intended purpose, serves some new purpose(s) without undergoing extensive reprocessing.

Sanitary Landfill A specially engineered site for disposing of solid waste on land constructed in a way that reduces hazards to health and safety.

Solid Waste All solid and semi-solid wastes, including trash, garbage, yard waste, ashes, industrial waste, swill, demolition and construction waste, and household discards such as appliances, furniture, and equipment.

Solid Waste Management The controlling, handling, and disposal of all solid waste. One goal of soild waste management is to reduce waste to a minimum.

Sorted Color Ledger Paper Sheets or cuttings of colored or white sulphite ledger paper. Colored paper also includes bond, writing, and other papers which have a similar fiber and filler content. Colored ledger paper must not be contaminated with treated, coated, padded, or heavily printed paper, carbon paper, or nonpaper materials.

Source Reduction Increasing efficiency, substituting materials, or changing processes so that fewer waste materials are produced.

Source Separated Materials Materials which have been separated, according to their type, from the waste stream at their point of origin.

Source Separation The separation of recyclable materials at the point of origin for the purpose of recycling.

SWMC The Solid Waste Management Corporation operates all state-owned waste management facilities, including incinerators.

Tab Cards Manilla computer cards. Must be separated by color, but valuable as a high grade paper. Different from computer print-out.

Tinned Steel Container A tin-coated steel container. They are widely used for canned goods, such as tuna fish and dog food.

Trash Material considered worthless, unnecessary, or offensive that is usually thrown away. Generally defined as dry waste material; excludes food waste (garbage) and ashes. The term is often used interchangeably with the word "garbage."

Waste Refers to unsegregated materials (both recyclable and nonrecyclable) generated as a by-product of an operation, and later disposed of. The term may be used to include materials which are recycled, as well.

Waste Reduction The design, manufacture, and/or use of a product to minimize the weight or volume of waste materials generated.

Waste Stream The sum total of all discarded materials.

White Goods Also referred to as white metals, white goods are household appliances.

White Ledger White sulphite or sulphate ledger paper. Includes copy machine paper, letterhead, and white notebook paper.